
How Natural Resources Affect Economic Development

Richard M. Auty*

Recent studies have established that, since the 1960s, resource-abundant countries have experienced significantly slower growth than resource-poor countries (Lal and Myint, 1996; Sachs and Warner, 1995; Ross, 1999). This conclusion is robust in the light of both sensitivity tests (Sachs and Warner, 1997) and differences in how the natural resource endowment is classified (Wood and Berge, 1997). However, economic theory provides no convincing explanation as to why resource abundance should be inherently disadvantageous. Indeed, the additional rents and foreign exchange obtained from commodity exports should permit higher levels of investment and greater capacity to import capital goods with which to accelerate economic growth (Auty and Mikesell, 1998: 13-31). Moreover, during the first golden age of economic growth from 1870 to 1913, resource-abundant countries experienced rapid growth, and in many cases outperformed the resource-poor countries of that period (Lewis, 1978; Maddison, 1995; Findlay and Lundahl, 1999). Policy differences offer the most plausible explanation (Ascher, 1999; Gelb, 1988; Lal and Myint, 1996).

This article argues that variations in economic performance are caused by differences in the quality of governance that are linked through the type of political state and the pattern of structural change to the natural resource endowment. It develops two models to explain the diverging performance of resource-poor and resource-abundant countries. These are described in the following section. They are presented as stylised facts models, rather than mathematical models, in order to be accessible to non-economists. The remainder of the article uses case studies to calibrate the models for differing permutations of the political state and natural resource endowment. More specifically, the third section applies the models to Malaysia and Ghana in order to show why countries with similar and favourable initial conditions but different political states will trace different development trajectories. The fourth section applies the models to a category of resource-abundant country, the mineral economy, which has performed relatively poorly, with reference to Bolivia and Saudi Arabia. The final section draws the conclusions.

*Professor, Department of Geography, Lancaster University, UK. This article draws on the UNU/WIDER Research Project on 'Environmental, export and human capital accumulation problems of resource-based growth-models'.

Models of natural resources and economic growth

Table 1 summarises the economic performance of more than 70 developing countries for which adequate data are available covering the period 1960-97. The countries are classified according to their size (using GDP in 1970 as an index of domestic market potential for industrialisation) and their cropland per capita in 1970. Most countries fall into the small resource-abundant category, so this is further sub-divided to identify the mineral economies (with 40% or more of their exports in oil or ore). The table confirms the superior performance of the resource-poor countries since the first oil shock. There are two basic reasons for this divergence. The first is the pattern of structural change: the limited scope for commodity exports causes diversification into manufacturing to begin earlier in resource-poor countries (Syrquin and Chenery, 1989). The delayed industrialisation of the resource-abundant countries is more capital-intensive and therefore challenges the implementation capacity of most governments (Lal and Myint 1996).

Table 1
Investment, GDP growth and investment efficiency, 6 natural resource endowment categories 1960-97

<i>Resource endowment category</i>	<i>Investment (% GDP)</i>	<i>GDP growth (%/year)</i>	<i>ICOR</i>	<i>PC GDP growth (%/year)</i>	<i>Population growth (%/year)</i>	<i>Number of countries</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Small non-mineral resource-rich						
1960-73	14.8	4.2	3.5	1.6	2.6	24
1973-85	20.5	3.4	6.9	0.7	2.7	29
1985-97	21.9	3.5	6.0	0.9	2.6	27
Small oil-exporting resource-rich						
1960-73	24.5	6.6	3.7	4.0	2.6	8
1973-85	31.0	6.5	5.7	2.3	4.2	8
1985-97	23.9	1.9	12.4	-0.7	2.6	8
Small ore-exporting resource-rich						
1960-73	17.5	4.9	5.7	2.2	2.7	10
1973-85	21.8	3.0	7.3	0.1	2.9	10
1985-97	17.1	2.3	7.5	-0.4	2.6	10

Large resource- rich						
1960-73	20.3	5.4	4.0	2.7	2.7	8
1973-85	21.8	3.1	7.1	0.7	2.4	10
1985-97	20.1	4.0	5.0	1.9	2.1	10
Small resource- poor						
1960-73	18.8	6.1	3.2	3.5	2.6	8
1973-85	24.8	4.0	6.2	1.8	2.2	8
1985-97	23.0	4.4	5.2	2.4	2.0	8
Large resource- poor						
1960-73	17.7	5.0	4.2	2.4	2.6	7
1973-85	25.5	5.8	4.4	3.7	2.1	7
1985-97	26.3	6.0	4.4	4.7	1.3	7

Note: Data points are missing for some years for some countries, but they tend to average out so that this does not inject an intolerable bias. Some discrepancy also arises from the use of constant 1995 US dollars because the more the inflation rate the greater the degree of the uncertainty that is added. Although there are large differences between countries in the starting level numbers, the trends within groups remain similar when these differences are allowed for with reduced samples or country-specific fixed effects. The comparative analysis in this table between the different points and a fixed effects continuous growth regression both yield similar results for the growth differences between resource endowment categories. Overall, therefore, the figures lack some precision, but the magnitude of the changes in the growth rates is large enough to be robust in the face of the statistical discrepancies.

Source: World Bank (1999a).

The second reason for the superior performance of the resource-poor countries is that they are more likely to engender a 'developmental' political state (Leftwich, 1995) that has both the autonomy to pursue coherent and prudent economic policies *and* the aim of maximising social welfare. Table 2 uses these criteria and extends Lal's (1995) typology of political states. It identifies two variants of the developmental state, namely, the autonomous benevolent state and the consensual democracy. The former is strongly associated with the successful resource-poor countries of East Asia. However, the relationship between a poor natural resource endowment and the developmental state is less deterministic than at least one recent model suggests (Sachs, 1999). A handful of resource-abundant countries have sustained rapid economic growth, two of which (Botswana and Malaysia) are consensual democracies, while some resource-deficient countries have fallen well short of the mean growth rate of their group where social tensions spilled into civil strife (notably El Salvador, Haiti, Mauritania and Somalia). However, contests over resource rents engendered factional or predatory states in the great majority of resource-abundant countries. Such states promote sectional interests at the expense of a coherent welfare-maximising economic policy.

Table 2
Typology of political states, after Lal

<i>Autonomy</i>	<i>Aims</i>	<i>Basic type</i>	<i>Markets role</i>	<i>Country examples</i>
Autonomous benevolent	Maximise social welfare	Growth with equity	Hard constraint	Hong Kong, Korea, Singapore, Taiwan
		Paternalistic monarchy	Relaxed constraint	Brunei, Kuwait, Saudi Arabia, UAE
Autonomous predator	Maximise rent siphoning	Military elite	Soft constraint	Ghana, Nigeria
		Central planning	Soft constraint	USSR
Factional democracy	Maximise social welfare	Growth with equity	Hard constraint	Malaysia, Botswana
		Equity priority over growth	Relaxed constraint	Costa Rica, Sri Lanka
Factional oligarchy	Maximise rent siphoning	Urban/industry captures policy	Soft constraint	Argentina, Brazil, India, Mexico, Bolivia
		Public officials capture policy	Soft constraint	Azerbaijan, Kazakstan, Russia, Uzbekistan
		Ethnic alliance captures policy	Soft constraint	Kenya, Sudan, South Africa

There are four main reasons why developmental states are more likely to arise with a poor natural resource endowment. First, intense pressure on land resources and the virtual absence of natural resource rents create a low tolerance by the poor majority of rent extraction or an inequitable distribution of assets. For example, per capita cropland in South Korea and Taiwan was already 0.1 hectares in the 1950s, a level that 'densely-settled' Bangladesh and Kenya reached some forty years later.¹ This heightens the probability that the political state will align its interests with the low-income majority, perhaps experimenting with central planning in some cases (like China and Vietnam). Second, resource-poor countries are less prone than resource-abundant countries to trade policy closure because they experience minimal Dutch disease effects (Sachs and Warner, 1995) and if they experiment with closed trade policies they abandon them earlier.²

¹ Singapore and Hong Kong had even less cropland per capita.

² Personal communication from A. Warner, based on the Sachs and Warner model.

Third, manufacturing tends to be competitive because it is transparent at a relatively low level of per capita income that the small size of the resource sector vis-à-vis the rest of the economy means that it cannot support slow-maturing infant industry or a bloated government bureaucracy (Auty, 1994). Nor can the emerging competitive manufacturing sector support such transfers because the fraction of rent within that sector's revenue stream is less than in the case of natural resources. Furthermore, competitive manufacturing cannot afford the higher cost of inputs from protected infant industry. Finally, a poor natural resource endowment reduces the scope for the cumulative policy error that abundant resource rents afford and thereby places a premium upon the efficient use of scarce resources and so promotes market discipline.

In contrast, resource-abundant countries lack the strong pressure from a low level of per capita income to align the interests of the political state with those of the majority poor. Contests for the natural resource rents tend to encourage factional and predatory states that subvert prudent macroeconomic policies and tolerate cumulative policy error. Infant industry and public employment provide conduits for transferring the rents and strengthen protectionist interests, thereby making economic reform even more difficult to pursue. Consequently, resource-rich countries are likely to distort their economies severely and compound the inherent problems of the shift from resource-driven growth to skill-driven growth.

The competitive industrialisation model

The sustained growth rates of the resource-poor countries in Table 1 reflect the fact that most of them adopted policies that fostered *competitive* industrialisation. The competitive industrialisation model summarises their development trajectory (column 1 of Table 3). The principal features are an early start on industrialisation and reform at a low per capita income aiming at a relatively open trade policy that triggers an expansion of labour-intensive manufacturing, much of it for export. This development trajectory promotes virtuous interlocking economic and social circles that sustain rapid economic growth which is also equitable.

The virtuous *economic* circle exhibits four key characteristics. First, early and rapid industrialisation accelerates the rate of urbanisation and, therefore, speeds up the demographic cycle. Consequently, the dependency/worker ratio falls and this stimulates saving and investment (Bloom and Williamson, 1998). Second, the rate of investment quickly rises towards 25% of GDP and, most importantly, the efficiency of investment is sustained (Table 1). Per capita GDP may double within a decade. Third, the arrival at the labour market turning point (which occurred within a decade after reform in both South Korea and Taiwan) creates pressure for wage increases that require the economy to diversify into *competitive* heavy and chemical industry (HCI). This diversification reduces the vulnerability of the economy to external shocks.

Table 3
Stylised facts of the political economy of the natural resource endowment and economic growth

<i>Model</i> <i>Natural resource</i> <i>endowment</i>	<i>Sequenced industrialisation</i> <i>Poor</i>	<i>Abundant diffuse</i>	<i>Abundant diffuse</i>	<i>Staple trap</i> <i>Abundant point ore</i>	<i>Abundant point oil</i>
	(1)	(2)	(3)	(4)	(5)
Pre-conditions					
Political state	Autonomous benevolent	Factional consensual democ.	Factional oligarchy/predatory	Factional oligarchy/predatory	Autonomous paternalistic
Rich 1/5: poor 1/5	4.0 - 9.0	7.0 - 16.0	5.0 – 33.0	9.0 - 32.0	12.0 - 20.0
Obsolete capital stock	Low	Low	Low/High	Low/High	Low/High
Policy					
Reform response	Early	Early	Postponed	Postponed	Partial
Trade policy	Open	Open	Closed	Closed	Open
Incentive bias	Comparative advantage	Comparative advantage	Infant industry/ public sector	Infant industry/public sector	Neutral/ public sector
Capital build-up					
Genuine saving	Strongly positive	Moderately positive	Low/negative	Low/negative	Negative
Produced	Rapid rise > 24%GDP	Slower rise > 20%GDP	Slow rise > 20%GDP	Slower rise + < 20%GDP	Rapid rise > 25% GDP
Human	Virtuous circle	Slower virtuous circle	Lagged + skewed	Lagged + skewed	Rapid + ineffective
Social	Transaction improving	Transaction improving	Transaction repressing	Transaction repressing	Feudalistic
Economic outcome					
ICOR 1985-97	4.8	5.5	6.0	7.5	12.4
Dutch disease effect	Negligible	Small	Strong	Strong	Strong
Diversification	Competitive widening	Slow competitive widening	Retarded/regressive	Regressing	Mono-product
Resilience to shocks	Robust	Robust	High vulnerability	High vulnerability	Financial cushion
PCGDP growth (%)	Sustained: 2.5 – 4.0	Sustained: 1.0 - 2.5	Erratic: 0.5 - 1.5	Boom + bust: (0.5) - 2.0	Boom + decline: (0.4) - 4.0
Examples					
Classic	South Korea	Malaysia	Ghana	Bolivia	Saudi Arabia
Classic	Singapore	Thailand	Honduras	Zambia	Brunei
Anomalous	Bangladesh	Myanmar	Costa Rica	Botswana	Oman

Source: Table 1 and World Bank (1999a).

Fourth, both the early reform and the rapidly increasing complexity of the economy foster a 'linear liberalisation' that, if not de-politicising development as Ranis and Mahmood (1992) claim, does at least further constrain rent-seeking behaviour.

The interlocking virtuous *social* circle has three main features. First, income equality is maintained because the tightening of the labour market removes the drag of surplus rural labour on the wages of the poor. In addition, the upgrading of workforce skills as HCI expands reduces the wage premium on higher skills and compresses the income range (Londono, 1996). Birdsall et al. (1997) and also Wood and Berge (1997) confirm the stronger incentive for skill acquisition provided by structural change in resource-poor economies compared with resource-abundant ones. Second, the resulting relatively equitable distribution of income helps to reduce transaction costs by boosting social capital accumulation compared with resource-abundant countries (Woolcock et al., 1999). Third, these trends in human and social capital combine to push the political economy towards a democracy that tends to be consensual rather than polarised, so that policy coherence is sustained and the risk of policy capture by vested interests is reduced.

The staple trap model

Resource-abundant countries rely on primary product exports for longer than resource-poor countries of a similar size. The natural resource rents in resource-abundant countries can be substantial, ranging from 200% of non-oil GDP per annum in Saudi Arabia during the 1974-8 oil boom towards 10-15% of GDP per annum in the case of Malaysia during the 1970s and 1980s (Vincent and Rozali, 1997). Even more modest levels of annual rents assume larger proportions during commodity booms. Contests for the rents have tended to foster factional and predatory political states in many developing countries in recent decades.

However, the impact of the natural resource endowment is not a deterministic one and a handful of resource-abundant countries including Botswana, Malaysia and Chile have evolved into consensual democracies. Where this occurs, the longer dependence upon primary products is not associated with cumulative policy failure but merely retards diversification into competitive industrialisation (Table 3, column 2). Nevertheless, the political state in most resource-abundant economies tends to be a factional oligopoly or predatory state that promotes sectional interests at the expense of a coherent economic policy and the long-run welfare of society at large (Table 3, columns 3-5).

The longer dependence of resource-abundant countries on commodity exports delays the process of competitive industrialisation, and *factional* governments extend the delay with four adverse consequences. First, economic diversification must initially occur into other primary products and this may prove difficult for the smallest resource-rich economies whose natural resource endowment is likely to be skewed towards one or two viable commodities (Auty and Mikesell, 1998).

Consistent with this, Table 1 shows that the larger resource-rich countries have out-performed the small cropland-rich and ore-rich countries. Second, slower industrialisation initially retards urbanisation and therefore passage through the demographic cycle, so that the favourable phase of the dependency/worker cycle is delayed and the accumulation of produced and human capital is further slowed. The earlier deceleration of population growth in the resource-poor countries (and also in the larger resource-abundant countries) is shown in Table 1. Third, the postponement of the labour market turning point causes surplus rural labour to persist longer and, along with the slower accumulation of skills, this amplifies income inequality and social tensions (Sachs, 1989: 4-5). Fourth, the industrialisation that does occur tends to be capital-intensive so that the beneficial job creation of the labour-intensive phase of the competitive industrialisation model is leapfrogged and governments feel obliged to intervene to create employment (Lal and Myint, 1996).

Industrialisation by infant-industry protection has three principal flaws. First, it creates discretionary rents that governments deploy with minimal transparency, so that they easily degenerate into a corrupt rent-dispensing mechanism that distorts the economy in an ad hoc and cumulative fashion. Second, such industry is capital-intensive and creates few jobs, so that governments feel obliged to respond to growing social tension by providing still more non-productive employment. This intensifies the relaxation of market discipline and expands still further the protected sector. Third, protected industry takes decades to mature instead of the five to eight years considered the maximum if the discounted benefits of infant-industry support are to compensate for the discounted costs of that support (Krueger and Tuncer, 1982). This imposes increasingly onerous demands on the primary sector for transfers and foreign exchange that undermine the primary sector's competitiveness (Auty, 1994). The efficiency of investment declines steeply and the level of investment flattens and may fall (Table 1).

Within such a system, the rents are transferred from the potentially efficient primary sector into an expanding non-tradeable sector which includes slow-maturing infant industry and non-productive public sector employment. As the protected clientele expands, so the demand for transfers outstrips the rents and depresses incentives within the primary sector below the levels required to sustain production, let alone to expand it. Extreme resource abundance sustains the transfers far longer, so that the distortion of the economy is the greater (and foreign aid can have a similar effect). The economy becomes locked into a staple trap in which the burgeoning slow-maturing industry and bloated public services depend on commodities with declining competitiveness whose share in GDP declines due to both diminished incentives and ongoing structural change.

The staple trap is also associated with the erosion of social capital. Income inequality deteriorates as the failure of the labour market to absorb surplus rural labour depresses the wages of the poorest, while a unionised labour aristocracy boosts the wages of the favoured, but relatively few, workers in the protected

capital-intensive manufacturing sector. Political contests over the rent stream also skew the distribution of income and assets in favour of a politically powerful minority. Decelerating economic growth therefore exacerbates social tensions and saps the capacity of society to cope with crises even as the severity of economic difficulty increases.

The distortion of the economy and the deterioration in social capital are potentially greater with 'point' resources, such as minerals, than with resources with more diffuse socio-economic linkages, such as crops (compare column 2 with columns 4 and 5 in Table 3). In the case of mining, revenues are typically concentrated on one or two large firms, a small labour aristocracy of mineworkers and the government. Taxation therefore dominates the domestic economic linkages so that the role of the government is increased, thus enhancing both the probability of policy failure and the magnitude of its effects. However, even the potentially favourable 'diffuse' socio-economic linkages of peasant farm economies (see Baldwin, 1956) may be repressed in factional political states (Table 3, column 3), as the next section shows.

Divergence with diffuse resources: Malaysia and Ghana

Initial conditions

Differences in initial conditions do not explain the divergent growth trajectories of Ghana and Malaysia. When they gained independence in 1957, they each inherited British institutions that included a democratic form of government, an effective civil service, the rule of law and levels of education that were high relative to their regional peer groups. Moreover, they were both mid-income countries with open and relatively undistorted economies: exports generated almost 30% of GNP in Ghana and over 50% of GNP in Malaysia (Table 4). The economies of both countries grew at a respectable 3-4% annually.

Nor do external factors explain the divergence. Ghana experienced its growth collapse during the 1960s despite favourable external trading conditions, whereas Malaysia sustained economic growth although its terms of trade deteriorated. A more fundamental difference between the two countries is the evolution of their political economy. Society in Ghana lacked cohesion after the withdrawal of colonial rule and the country quickly regressed into a factional oligopoly, a common outcome where ethnic or class divisions polarise contests over resource rents. In contrast, Malaysia sustained a consensual democracy despite ethnic schisms. Islam and Chowdhury (1996) convincingly argue that the Malay majority reached a compromise with the large Chinese minority that allowed successive governments to pursue an economic policy of growth with equity. The Chinese leadership accepted Malay political primacy and special privileges in return for

Table 4
Structure of production, absorption and exports, 4 resource-abundant countries 1960-95

	<i>Bolivia</i>			<i>Ghana</i>			<i>Malaysia</i>			<i>Saudi Arabia</i>		
	1960	1980	1995	1960	1980	1995	1960	1980	1995	1960	1980	1995
Agriculture	22	19	16	41	58	46	39	23	14	8	2	6
Manufacturing	13	15	19	10	12	6	9	20	33	8	5	10
Private consumption	83 ^a	67	75	n.a	84	78	62	51	51	37	22	40
Public consumption	n.a	14	14	n.a	6	12	13	30	12	17	16	26
Investment	13	17	16	24	11	19	13	30	41	19	21	19
Exports	20	25	26	28	8	25	56	58	96	52	71	45

Note: a total consumption. Sources: For 1950-70: Roemer (1984), Young et al. (1980). For 1970-95: World Bank (1995).

full citizenship, a role in government and dominance in economic affairs, albeit a dominance that slowly eroded. State intervention in directly productive activity was constrained by this tacit agreement, while investment in economic and human capital for the lagging rural Malay majority was encouraged.

Diverging trade policies

Policy failure occurred early in Ghana and resulted from efforts by the Nkrumah government (1960–66) to force the pace of industrialisation by a big push. Trade policy was therefore closed not as a defensive reaction to Dutch disease effects, as Sachs' (1999) deterministic model argues, but as an attempt to use fashionable central planning to restructure the economy away from 'external dependence'. Effective rates of protection (ERPs) against imported manufactured goods varied widely and ranged as high as 1000% (Hogendorn and Christiansen, 1996). Those benefiting from a closed trade policy quickly acquired political influence; when Nkrumah was overthrown by a military coup, economic reform was postponed in favour of stimulating economic growth by further public expenditure.

In contrast to Ghana, and most resource-abundant countries, Malaysian governments maintained an open trade policy and relaxed market discipline far less. Although infant industry was promoted during the 1960s, its limitations were quickly recognised and an early switch was made in 1968 to encourage manufactured exports. An export-processing zone was established in 1971. The ERPs in Malaysia were considerably less than those in most developing countries, at 35–40%, and the average ERP on manufacturing declined during the 1970s to 23% in 1982 and 17% by 1987 (Ghee and Woon, 1994: 379).

Structural change and economic resilience

Consistent with the staple trap model, the non-tradeable sector of the Ghanaian economy, which included state-owned enterprises as well as government and private services, grew at the expense of the potentially dynamic primary sector. The peasant farmers scattered throughout the countryside proved no match for the vocal urban interests which benefited from trade closure. Out of a sample of 18 developing countries, Ghana had the highest level of discrimination against agriculture during the 1960s and 1970s (Krueger, 1993: 61–73). Agricultural growth decelerated, and the export earnings lost during 1963–85 were estimated to be 80% of what Ghana's actual exports would have been under a neutral trade policy. Such a reduction in farm income represents a sizeable loss not only in exports, taxes and welfare, but also in domestic purchasing power on which the protected infant industry depended. Not surprisingly, the initial expansion of manufacturing's share of GDP reversed during the 1970s (Table 4). Ghana therefore remained dependent on cocoa and gold, for which incentives were shrinking.

In contrast, Malaysia achieved competitive diversification: it sustained a rate of agricultural growth during the 1960s and 1970s of 4–6% per annum (Young et al., 1980: 323), towards the maximum considered by Mellor (1995) to be practical for the sector. Interestingly, the relative decline in Malaysian agriculture between 1960 and 1990 was slower than the Syrquin and Chenery (1989) norms predict (Salleh and Meyanathan, 1993: 45) and manufacturing remained well below the norms until the mid-1980s and did not overtake the primary sector in size until 1991. The norms are based on post-war global data and reflect the fact that most developing countries were resource-rich during that period and distorted their economies in promoting infant industry. Malaysia's distinctive structural change brought an initial diversification away from rubber and tin into more buoyant commodities like hydrocarbons, palm oil and timber. Thereafter, manufacturing expanded rapidly, lifting its share of exports from one-fifth to four-fifths within fifteen years (Table 4).

Capital accumulation and growth

Ghana's distorted incentives caused its rate of investment, which had reached a very respectable 25% of GDP during the 1950s, to collapse to average only 11% in 1970–73 and less than 5% a decade later. Capital expenditure dropped below maintenance levels so that the social and economic infrastructure deteriorated during the 1970s. Human capital was also eroded as public expenditure on education, health and social security plummeted from 8.7% of GDP in 1970 to 2.3% thirteen years later. Public sector wages fell 80% in real terms in the period 1975–83, so that workers needed to supplement their income and the civil service lost many of its more able workers. Private sector earnings fared little better (Alderman, 1994) and a significant fraction of the best educated citizens emigrated.

In contrast, Malaysia steadily raised the share of investment in GDP from barely half that of Ghana in 1960 to 41% in 1995 (Table 4). The initial rise was based almost wholly on domestic savings (forced savings on wages plus revenues from the domestication of the commodity sector (Salleh and Meyanathan, 1993: 6)). Natural resource rents also helped, averaging one-third of gross investment in 1970–90. But, if the accumulation of produced capital was satisfactory, human capital formation lagged behind that of the resource-poor East Asian countries (Aoka and Takayasu, 1997). This is inherent in commodity-led growth but the Malaysian government may have intervened too much: its share of GDP reached 42% in 1982, double that of South Korea, Thailand and Brazil (Sachs, 1985). However, the scale of public expenditure reflects the New Economic Policy (NEP) that was adopted in response to race riots in 1969. The NEP played a central role in controlling social strife by redistributing wealth towards the Malay population. But the transfer of resources from the mining and plantation sectors to the peasant sector was not achieved at the expense of incentives in the latter,

unlike in Sri Lanka (Bruton, 1992).

Malaysia therefore developed through competitive industrialisation, albeit with a lag and greater income inequality and slower skill accumulation than the resource-poor countries of North-East Asia (compare columns 1 and 2, Table 3). Ghana quickly fell into a staple trap (column 3, Table 3), despite favourable initial conditions that include the diffuse socio-economic linkages that small-scale cocoa farming can provide. This is because a factional political state can all too easily use institutions like crop marketing boards to degrade such linkages into point linkages that it can more easily control, and mismanage.

The staple trap with point resources: Bolivia and Saudi Arabia

Point socio-economic linkages concentrate the natural resource rents on the government, so that the risk of policy failure is higher than with the more diffuse socio-economic linkages of peasant farming *within a developmental political state*. In mineral economies, a developmental government would capture the rents, sterilise their potentially adverse impact on the non-mining tradeables sectors and deploy them so that the domestic economy diversifies into sectors that can sustain growth when mining declines. Few governments succeeded in achieving this, even those that enjoyed high autonomy and sought to boost social welfare (Table 3, column 5).

Bolivia and Saudi Arabia had contrasting political economies and both experienced strong improvements in their terms of trade during the oil booms (Table 5), but neither avoided a growth collapse. The Bolivian political state remained a factional oligopoly until the hyperinflation of the 1980s. This is because the revolution of 1952 failed to relieve social tensions and create a policy consensus. The revolution extended the role of the government but failed to provide the resources with which to execute it effectively. In contrast, Saudi Arabia was an autonomous political state, but not a developmental state. Rather, the government relied on paternalism to manage social tensions and this led it to relax market discipline.

The Bolivian government was pursuing much-delayed economic reforms when the first oil shock caused a sharp improvement in the terms of trade. Mineral rents quadrupled to one-quarter of GDP, comparing 1982-5 with 1970-73 (Auty and Evia, 1999). Consistent with the staple trap model, instead of using the windfall to bolster the reforms, the government backtracked and expanded domestic consumption through a real appreciation of the exchange rate and lower direct taxation. It responded to the deterioration in the competitiveness of the non-mining tradeables (the Dutch disease effects) by increasing protection, so that the ERP on manufacturing reached 90% by the mid-1980s. Even so, the share of that sector in GDP still contracted by almost one-third to 11%. Successive governments decapitalised the mining sector in order to bolster revenues, even as the rest of the economy became more dependent upon mining. Higher levels of public investment were associated with deterioration in investment efficiency and economic growth slowed during the late 1970s and then

collapsed. In this weakened condition, the economy had to face a halving in its terms of trade in the late 1980s that entailed the loss of rents equivalent to 18% of GDP annually. Paradoxically, the economic crisis shifted the political state towards a consensual democracy and positive economic growth was achieved.

Table 5
Trends in the terms of trade, 5 countries 1970-93

	1970-73	1974-77	1978-81	1982-85	1986-89	1990-93
Bolivia	66.7	122.8	142.4	135.0	101.8	78.1 ^a
Ghana	112.0	138.3	175.8	100.0	98.9	68.4
Malaysia	112.0	110.9	126.8	121.4	96.5	94.7
Saudi Arabia	22.8	95.7	133.0	182.5	80.8	103.5 ^a
South Korea	124.2	104.9	98.8	93.6	99.0	92.7 ^a

Note: a. data for 1990-92 only. Source: World Bank (1995), based on 1987 = 100.

Although Saudi Arabia, like most *capital-surplus* oil-exporting countries, maintained a more open economy, it too experienced a growth collapse when oil prices fell. Therefore, although trade policy closure is strongly associated with growth collapses, it is not a necessary condition. Rather, and more fundamentally, growth collapses occur because the resource rents facilitate a relaxation of market discipline which compounds distortions within the economy that are then politically difficult to correct.

The paternalistic Saudi government allocated too high a fraction of the oil windfall to domestic absorption. The rapid domestic absorption of the oil rents caused the real exchange rate to appreciate four-fold in the 1970s, so that very little non-oil activity was competitive. Although resource-based industry was established, it was relatively small and created few jobs. The government therefore relied for jobs upon infrastructure construction, subsidised farming and, above all, the public sector. Even in the mid-1990s, public sector wages absorbed 19% of GDP in Saudi Arabia compared with 3-4% in Mexico, Venezuela, Nigeria and Sweden (Chalk et al., 1997). The Saudi government failed to convert sufficient of the natural capital (oil) into alternative growth-sustaining investment: the private sector remained stunted and, despite high expenditure on education, the *national* workforce was ill equipped to flourish in a market economy.

When oil prices fell, the government cut public expenditure and depreciated the real exchange rate, but the response was too timid in each case, so that the economy diversified too slowly and remained over-dependent on oil. By the late 1990s, the government had exhausted its considerable overseas financial reserves and accumulated domestic debt that was double a prudent level (SAMA 1998). Table 6 shows that the Saudi economy was on a far from sustainable growth trajectory throughout the period 1970-93, in contrast to Malaysia and South Korea. Nor did the paternalistic expenditure assure social sustainability. Real per capita GNP more than halved from its peak level after rising eight-fold over the period 1970-

80 (World Bank, 1999a). Although welfare gains such as improved life expectancy and expanded access to education were sustained, their continuation relied upon the state largesse that the oil rents provided. Meanwhile, the deployment of the oil windfall had left a wide gap between an elite 1% of the population with assets around \$400 billion and young workers who faced reduced public sector job opportunities.

Table 6
Extended genuine saving rates, 5 countries 1970-94 (% GNP)

	1970-74	1975-79	1980-84	1985-89	1990-94 ^a
Bolivia	6.10	-13.70	-43.77	-27.52	-13.97
Ghana	6.46	1.63	-10.94	-1.61	-1.94
Malaysia	17.31	17.61	9.08	10.43	15.21
Saudi Arabia	-32.84	-23.51	-29.34	-21.74	-30.57
South Korea	11.13	20.60	20.69	30.33	30.53

Note: a Saudi Arabia 1990-93 only. Source: World Bank (1999b).

Conclusion

The natural resource endowment differentiates structural change and affects the likelihood of the political state being a developmental one. However, the latter relationship is not deterministic, so, to that extent, domestic economic policy is more important than natural resources in driving economic growth. It is ironic that the growth collapses of the late 1970s and early 1980s resulted from the backfiring of the resource-abundant countries' efforts to reduce their commodity dependence. *Domestic* policies to promote infant industry (which resource abundance could sustain for longer than resource-poor countries) weakened their economies during the 1960s. Thereafter, *international* efforts to reverse the long-run decline in real commodity prices by establishing producer agreements triggered trade shocks in the 1970s that damaged their weakened economies.

Most resource-abundant countries traced the development trajectory summarised by the staple trap model. Commodity exports sparked contests for rents that usually fostered factional or predatory political states. Their governments espoused infant industry policies that quickly degenerated into systems for transferring rents from the politically weak resource sector into a burgeoning non-tradeable sector characterised by slow-maturing manufacturing and an over-extended state bureaucracy. The relative decline of the resource sector accelerated the repression of incentives so that investment efficiency deteriorated. The virtuous economic and social circles of the competitive industrialisation model that is associated mainly, albeit not exclusively, with resource-poor countries were lost. Ghana demonstrates how rapidly a growth collapse can occur, how easily potentially favourable diffuse socio-economic linkages are degraded and how protracted reform can then become because of the erosion of all forms of capital. The relaxation of market

discipline through deployment of resource rents is a critical condition for a growth collapse rather than trade policy closure, as Saudi Arabia shows.

Yet the cumulative distortion of the economy is not an inevitable result of resource abundance, provided the political state maintains incentives for directly productive investment. Although resource abundance did delay Malaysian industrialisation and retard its per capita GDP growth compared with the resource-poor East Asian countries, Malaysia still evolved towards the competitive industrialisation model. This is so despite chronic ethnic tensions that are often blamed for triggering policy failure in resource-abundant countries. However, Malaysia had two important advantages. First, its differentiated natural resource endowment conferred more scope for economic diversification when leading staples flagged than most small resource-abundant countries enjoy. Second, the political state evolved into a consensual democracy because an economically powerful and pragmatic ethnic minority accepted the need for redistribution towards the lagging majority as long as this did not stifle private commercial opportunities or distort the economy.

Further research is required to spell out the policy implications arising from the differing combinations of natural resource endowment and political state. The resource permutations can also be elaborated further. For example, Ghana (like Kenya and Bangladesh) shows how a country that becomes locked in a staple trap (so that its population growth rate remains high) can quickly pass from resource abundance to resource paucity. In that way a country that is resource-poor can also be locked into a staple trap, so that at least one further column might be added to Table 3.

References

- Alderman, H. (1994) 'Ghana: Adjustment's Star Pupil?' in D.E. Sahn (ed.), *Adjusting to Policy Failure in African Economies*. Ithaca, NY: Cornell University Press.
- Aoka, T. and Takayasu, K. (1997) 'Development Experience and Issues of Malaysia' in T. Yanagihara and S. Sambommatsu (eds), *East Asian Development Experience: Economic System Approach and Its Applicability*. Tokyo: Institute of Developing Economies.
- Ascher, W. (1999) *Why Governments Waste Natural Resources: Policy Failures in Developing Countries*. Baltimore, MD: Johns Hopkins University Press.
- Auty, R.M. (1994) *Economic Development and Industrial Policy*. London: Mansell.
- Auty, R.M. and Mikesell, R.F. (1998) *Sustainable Development in Mineral Economies*. Oxford: Clarendon Press.
- Auty, R.M. and Evia, J. (1999) 'A Growth Collapse with Point Source Natural Resources: Bolivia'. Helsinki: UNU/WIDER (mimeo).
- Baldwin, R.E. (1956) 'Patterns of Development in Newly Settled Regions', *Manchester School of Social and Economic Studies* 24: 161-79.

- Birdsall, N., Ross, D. and Sabot, R. (1997) 'Education, Growth and Inequality' in N. Birdsall and F. Jasperson (eds), *Pathways to Growth: Comparing East Asia and Latin America*. Washington, DC: Inter-American Development Bank.
- Bloom, D.E. and Williamson, J.G. (1998) 'Demographic Transitions and Economic Miracles in Emerging Asia', *The World Bank Economic Review* 12: 419-55.
- Bruton, H.J. (1992) *The Political Economy of Poverty, Equity and Growth: Sri Lanka and Malaysia*. New York: Oxford University Press.
- Chalk, N.A., El-Erian, M.A., Fennell, S.J., Kireyev, A.P. and Wilson, J.F. (1997) *Kuwait: From Reconstruction to Accumulation for Future Generations*. IMF Occasional Paper 150. Washington, DC: International Monetary Fund.
- Findlay, R. and Lundahl, M. (1999) *Resource-Led Growth: A Long-Term Perspective: The Relevance of the 1870-1914 Experience for Today's Developing Economies*. UNU/WIDER Working Paper 162. Helsinki: UNU/WIDER.
- Gelb, A.H. (1988) *Oil Windfalls: Blessing or Curse?* New York: Oxford University Press.
- Ghee, L.T. and Woon, T.K. (1994) 'Industrial Restructuring and Performance in Malaysia' in G.K. Helleiner (ed.), *Trade Policy and Industrialization in Turbulent Times*. London: Routledge.
- Hogendorn, J. and Christiansen, R. (1996) 'Perspectives on the Economic Experience of Two Countries of Sub-Saharan Africa: Ghana and Malawi from the 1960s to the 1980s' in Islam and Chowdury.
- Islam, I. and Chowdhury, A. (eds) (1996) *Asia-Pacific Economies*. London: Routledge.
- Krueger, A.O. (1993) *The Political Economy of Agricultural Pricing Policy: A Synthesis of the Political Economy in Developing Countries*. Baltimore, MD: Johns Hopkins University Press.
- Krueger, A.O. and Tuncer, B. (1982) 'An Empirical Test of the Infant Industry Argument', *American Economic Review* 72: 1142-52.
- Lal, D. (1995) 'Why Growth Rates Differ. The Political Economy of Social Capability in 21 Developing Countries' in B.H. Koo and D.H. Perkins (eds), *Social Capability and Long-run Economic Growth*. Basingstoke: Macmillan.
- Lal, D. and Myint, H. (1996) *The Political Economy of Poverty, Equity and Growth: A Comparative Study*. Oxford: Clarendon Press.
- Leftwich, A. (1995) 'Bringing Politics Back In: Towards a Model of the Developmental State', *Journal of Development Studies* 31: 400-27.
- Lewis, W.A. (1978) *Growth and Fluctuations 1870-1913*. London: Allen and Unwin.
- Londono, J.L. (1996) *Poverty, Inequality and Human Capital Development in Latin America, 1950-2025*. Washington, DC: World Bank.
- Maddison, A. (1995) *Monitoring the World Economy 1820-1992*. Paris: OECD.
- Mellor, J.W. (1995) *Agriculture on the Road to Industrialization*. Baltimore, MD: Johns Hopkins University Press.

- Ranis, G. and Mamood, S.A. (1992) *The Political Economy of Development Policy Change*. Oxford: Blackwell.
- Roemer, M. (1984) 'Ghana, 1950-80: Missed Opportunities' in A.C. Harberger (ed.), *World Economic Growth*. San Francisco, CA: ICS Press.
- Ross, M.L. (1999) 'The Political Economy of the Resource Curse', *World Politics* 51: 297-322.
- Sachs, J.D. (1985) 'External Debt and Macroeconomic Performance in Latin America and Asia', *Brookings Papers on Economic Activity* 2: 523-75.
- Sachs, J.D. (1989) *Social Conflict and Populist Policies in Latin America*. NBER Working Paper 2897. Cambridge, MA: National Bureau of Economic Research.
- Sachs, J.D. (1999) 'Resource Endowments and the Real Exchange Rate: A Comparison of Latin America and East Asia', in T. Ito and A.O. Krueger (eds), *Changes in Exchange Rates in Rapidly Developing Countries*. Chicago, IL: University of Chicago Press.
- Sachs, J.D. and Warner, A.M. (1995) 'Economic Reform and the Process of Global Integration', *Brookings Papers on Economic Activity* 1: 1-118.
- Sachs, J.D. and Warner, A.M. (1997) 'Natural Resource Abundance and Economic Growth'. Cambridge, MA: HIID (mimeo).
- Salleh, I.M. and Meyanathan, S.D. (1993) *The Lessons of Asia: Malaysia Growth, Equity and Structural Transformation*. Washington, DC: World Bank.
- SAMA (1998) *Saudi Arabian Monetary Authority: Thirty-fourth Annual Report*. Riyadh: Saudi Arabian Monetary Authority.
- Syrquin, M. and Chenery, H.B. (1989) *Patterns of Development, 1950 to 1983*. World Bank Discussion Paper 41. Washington, DC: World Bank.
- Vincent, J.R. and Rozali, M. (1997) *Environment and Development in a Resource-rich Economy*. Cambridge, MA: Harvard University Press.
- Woolcock, M., Isham, J. and Pritchett, L. (1999) 'The Social Foundations of Poor Economic Growth in Resource-rich Countries'. Helsinki: UNU/WIDER (mimeo).
- Wood, A. and Berge, K. (1997) 'Exporting Manufactures: Human Resources, Natural Resources, and Trade Policy', *Journal of Development Studies* 34: 35-59.
- World Bank (1995) *World Bank Tables 1995*. Baltimore, MD: Johns Hopkins University Press.
- World Bank (1999a) *World Development Indicators 1999*. Washington, DC: World Bank.
- World Bank (1999b) *Green Accounting*. Washington, DC: World Bank.
- Young, K., Bussink, W.C.F. and Hasan, P. (1980) *Malaysia: Growth and Equity in a Multiracial Society*. Baltimore, MD: Johns Hopkins University Press.